

**Amendments to the Claims:**

This listing of claims replaces all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-7. (Cancelled).

8. (Previously Presented) A method for optimizing the performance of a connection between a source node and a destination node in a multihop network, said method comprising the steps of:

transmitting a beacon containing a measure of performance for the connection from at least one active node associated with the connection between the source node and the destination node;

receiving at least one of the transmitted beacons at least one neighboring node associated with the connection between the source node and the destination node;

calculating at said at least one neighboring node a cost function based on the measure of performance in each received beacon;

determining at said at least one neighboring node whether the cost function for the connection between the source node and the destination node can be improved if said at least one neighboring node adapts at least one resource in the multihop network; and

if yes, adapting the at least one resource to improve the cost function for the connection between the source node and the destination node; or

if no, maintaining the at least one resource in the connection between the source node and the destination node.

9. (Original) The method of Claim 8, wherein each active node performs the receiving step, the calculating step, the determining step, the adapting step and the maintaining step.

10. (Previously Presented) The method of Claim 9, wherein said at least one resource includes:

- a route;
- a channel; or
- one or more physical layer parameters.

11. (Original) The method of Claim 9, wherein said adapting step includes inserting at least one of the neighboring nodes into the connection between the source node and the destination node and removing at least one of the active nodes from the connection between the source node and the destination node.

12. (Original) The method of Claim 9, wherein said adapting step includes removing at least one of the active nodes from the connection between the source node and the destination node.

13. (Previously Presented) The method of Claim 8, wherein said adapting step is performed when there is a topology change within the multihop network, said topology change includes:

- a movement of one of the nodes;
- one or more quality variations in a channel between the source node and the destination node;
- one or more changes in traffic patterns within the multihop network;
- one or more changes in transmit patterns within the multihop network; or
- one or more changes in resource allocations within the multihop network.

14. (Original) The method of Claim 8, wherein said at least one neighboring node adapts the at least one resource of the multihop network in an opportunistic manner in response to an instantaneous topology change in the multihop network.

15. (Previously Presented) The method of Claim 8, wherein each beacon includes a general broadcast part and a connection related part that contains the measure of performance which includes:

an accumulated cost for the connection between the source node and the destination node; or

a maximum allowed power for the transmitting active node.

16. (Previously Presented) A wireless multihop network that implements a reactive routing protocol to optimize the performance of a connection between a source node and a destination node, said wireless multihop network comprising:

at least one active node located in the connection between the source node and the destination node, wherein each active node transmits a beacon containing a measure of performance for the connection between the source node and the destination node; and

at least one neighboring node associated with the connection between the source node and the destination node, wherein each neighboring node receives at least one of the transmitted beacons, calculates a cost function based on the measure of performance in each received beacon, and adapts at least one resource in the wireless multihop network if it is possible to improve the cost function for the connection between the source node and the destination node.

17. (Original) The wireless multihop network of Claim 16, wherein each active node performs the receiving step, the calculating step and the adapting step.

18. (Previously Presented) The wireless multihop network of Claim 16, wherein said at least one resource includes:

a route;

a channel; or

one or more physical layer parameters.

19. (Original) The wireless multihop network of Claim 16, wherein said adapting step includes inserting at least one of the neighboring nodes into the connection between the source node and the destination node and removing at least one of the active nodes from the connection between the source node and the destination node.

20. (Original) The wireless multihop network of Claim 16, wherein said adapting step includes removing at least one of the active nodes from the connection between the source node and the destination node.

21. (Previously Presented) The wireless multihop network of Claim 16, wherein each neighboring node performs the adapting step when there is a topology change within the wireless multihop network, said topology change includes:

a movement of one of the nodes;

one or more quality variations in a channel between said source node and said destination node;

one or more changes in traffic patterns within the wireless multihop network;

one or more changes in transmit patterns within the wireless multihop network;

or

one or more changes in resource allocations within the multihop network.

22. (Original) The wireless multihop network of Claim 16, wherein each neighboring node performs the adapting step in an opportunistic manner when there is a real-time topology change within the wireless multihop network.

23. (Original) The wireless multihop network of Claim 16, wherein each beacon includes a general broadcast part and a connection related part that contains the measure of performance which includes:

an accumulated cost for the connection between the source node and the destination node; or

a maximum allowed power for transmitting active node.

24. (Cancelled)

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